position to enable it so to do, carrying the ventricle against the thoracic parietes with a force equal to the difference between the power of the right and left ventricles.

17. These principles are applicable to all forms of heart, and to the mechanism of the capillaries, as well as every physical structure and function. Mr. Greeves has confirmed them by direct experiment upon living animals, and illustrated them before the Association by various mechanical experiments, cases of pathology, and preparations of human and comparative anatomy.—*Lancet for September 10th,* 1836.

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5. *On the Power by which the Head of the Thigh Bone is Retained in its Socket.* Dr. Edward Weber read a paper on this subject at the meeting of German naturalists at Bonn, Sept. 25th, 1835; and, on the following day, the experiments referred to in it were repeated in the presence, among others, of Leuckart, Mayer, Schulze, Munke, and the two Webers; all of whom were convinced of the retention of the femur in its socket by the pressure of the atmosphere. The paper alluded to, has been published in *Müller's Archiv. für Anat.* Heft. I. 1836. We copy the following translation of the greater part of it from the third number of our esteemed transatlantic cotemporary, the British and Foreign Quarterly Review.

It has been generally believed that it is through the power of the muscles or ligaments that the head of the thigh-bone is retained in its socket; and this, probably, because they are the first to strike our senses. A closer investigation, however, has proved that it is neither the muscles nor ligaments that effect this, but the pressure of the atmosphere. The head of the thigh-bone, enclosed in its air-tight cavity, remains in its place, on the same principle that the piston remains fixed in a cylinder, the upper extremity of which is closed with the finger; being forced by the air against the upper walls of its cavity, just as the mercury in the barometer is forced upwards by the same agent. The following experiments prove this fact:

1st. The trunk of the body was laid on a table in such a position that the leg and thigh hung down unobstructed. If the bone were supported in its place by the muscles and ligaments, it must clearly fall when the muscles and ligaments are divided. I divided the muscles and ligaments, and the limb did *not* fall: on the contrary, the bones constituting the joint remained in close contact, as before.

2nd. If we admit that the limb is maintained in its position by atmospheric pressure, it is clear that it should fall down when air is admitted into the joint. I bored a hole through the wall of the bony cavity of the joint, and on the admission of the air the limb fell; and the displacement followed on boring the hole, even when the muscles and ligaments were not divided.

3d. If we assume that the atmospheric pressure is *alone* sufficient to maintain the limb in its place, the bone which had fallen down ought to be retained there when replaced and the air excluded. I replaced the bone which had been severed from the body, and excluded the air from the joint by closing the artificial opening with the finger: the limb remained supported in its place; and immediately fell down once more on the finger being removed.

I will only here refer to one instance of the practical application of this view of the mechanism of the thigh-joint,—the case known by the name of *spontaneous luxation of the thigh.* It is well known that, in this case, the bone is displaced without any obvious external cause, the limb being at first considerably lengthened, with marked lameness.

Since it has been shown that the head of the bone is not retained in its place by the power of the ligaments, it is not therefore necessary, for the explanation of the case, to admit that the ligaments must, previously to its occurrence, be lengthened, or (to speak generally) *altered*, in any way. Our experiments have shown that the head of the bone fell immediately from its socket into the inferior portion of the capsular ligament (in die höhle der kapsel herabsank,) upon the admission of air into the cavity of the joint. But, to produce this result, it is not necessary that air should be introduced from without: the same effect will follow the secretion of a fluid or the growth of a solid body in the cavity of the joint itself. In proportion as such a substance, whether fluid or solid, accumulates, the head of the bone will necessarily fall down through its own weight, without the application of any force, and without the least resistance being opposed by the ligaments of the joint.

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6. *Anomalous Menstruation.*—M. Bourgeois has met with a curious example of this. A young lady of 15 or 16 years of age, commenced some time since to menstruate from the extremities of each of her ten fingers. At the second menstrual epoch, the hæmorrhage was renewed from the same place, and at the period when M. B. communicated the fact to the Medical Society of Paris, the menses had not appeared in the natural manner.—*Rev. Med.* Aug. 1836.

MEDICINE.

PATHOLOGICAL AND THERAPEUTICAL.

7. *Observations on the sudden death of Children from enlargement of the Thymus Gland.* By W. F. Montgomery, M. D.—The fact that children, apparently in good health, sometimes die suddenly—that is, in the space of a minute or so—is too well known to render any thing more than the mere allusion to it necessary; but the cause, or at least one of the occasional causes, is not so well understood. I have now seen several instances of a very singular mode of death in children, and there are some gentlemen in this city who have witnessed the cases with me, and seen the results. I allude here to those cases in which young children are suddenly cut off by an undue enlargement of the thymus gland.

A minute account of the form, structure, and relations of the thymus gland, would be here misplaced, and does not appear necessary: but as there may be some to whom the matter may not be so familiar, I trust I shall be excused for touching briefly on this point. The thymus gland is a peculiar body, discoverable in the fœtus about the third month of intra-uterine life, and in the fourth month presenting itself as a distinct organ occupying the upper and anterior part of the thorax. About the time of birth it possesses considerable size, and is lodged behind the superior part of the sternum, lying over the lungs and heart. It covers a considerable portion of the lungs and pericardium, passes through the superior aperture of the thorax, and extends upwards as far as the thyroid gland; part of it is therefore confined by a bony case, and part of it free; being covered in the neck merely by the integuments and a thin layer of muscular substance. Its tissue is soft, loose, and pulpy, and contains a vast number of small cells opening into a large reservoir. This reservoir is as large, in proportion to the gland, as one of the ventricles is to the heart, and is very well represented in one of the plates to Sir A. Cooper's work.* The cells of the organ are filled with whitish cream-coloured secretion, which has some of the properties of chyle. The parenchyma of the gland is very soft, spongy, and highly distensible. Its supply of blood is also very remarkable. This is furnished by four long arteries, of which the two superior are generally branches of the thyroid arteries; the two inferior ones are derived from the internal mammary. Its veins, (and this is a point deserving of attention) are also divided into two sets, the upper opening into the thyroid veins, the lower emptying themselves into the left vena innominata.

The thymus gland is then a soft, spongy, and highly distensible organ, forming in the newly born infant, a mass of considerable size, situated in the upper part of the thorax, and extending up the neck as far as the thyroid gland, partly free and partly confined, lying over the pericardium, lungs, and the roots of the great vessels, abundantly supplied with blood, and capable from its position of exercising, under certain circumstances, a considerable degree of pressure on the trachea and left vena innominata. Its ordinary weight at birth is about half an ounce, or 240 grains.

If we examine the superior aperture of the thorax, and observe that in this situation we have the trachea, œsophagus, the great arteries of the head and upper extremities, the venæ innominatæ, and the phrenic and pneumogastric, recurrent, and sympathetic nerves; if we reflect also that in this situation we have an organ of considerable dimensions, and capable of great distension, we can easily understand

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* On the Anatomy of the Thymus Gland, Plate iv. fig. 6.